

# RESEARCH AND MONITORING/EDUCATION AND OUTREACH TRAINING PROGRAM

## Eastern Tropical Pacific Seascape

### SECTION I: GIS AS A MANAGEMENT TOOL

#### Module 1: GIS (3 days)

- Grid and Attributes of Geographic Information Systems
- Functional Components of GIS
- Grid and Polygon Systems
- Steps in Generating GIS; Creating a Map Base; Collecting Data; Digitizing; Data and Attribute Entry; Setting-up GIS Queries
- Examination of GIS Outputs
- Using GIS as a Tool to Build a Zonal Plan
- Using GIS as a Tool for Results-Based Management
- Using GIS as an Education Tool

**Outcome:** To develop a basic understanding and familiarization with GIS software and its applications in mapping, presentation of data layers, education and as a management decision making tool.

**Output:** Site characterization maps for each MPA and development of one decision-making tool and education tool.

### SECTION II: RESEARCH AND MONITORING

#### Module 2: Site Characterization (2 days)

- Developing a Baseline to Measure Change Over Time
- Summarizing Existing Physical Oceanography and Meteorological Data to Build Climatology Characterization
- Using Museum Collections, Data Archives and Literature Reviews to Characterize Living Marine Resources
- Characterizing and Mapping Habitats to Identify Location and Relative Abundance of Habitat Types; Suitable Habitat for Species of Concern; Extent of Damaged or Compromised Habitat
- Characterizing Spatial and Temporal Patterns of Migratory Species Such as Seabirds and Marine Mammals
- Using Baseline Data for Zonal Management Planning for Tourism and Fisheries
- Using Baseline Data as a Threshold for Levels of Acceptable Change (LAC) and/or Carrying Capacity for Tourism and Fisheries Management Planning
- Exercise: Using Site Characterizations to Identify Areas of Connectivity
- Case Studies: A Look at Large-Scale Biogeographic Assessments; Using Site-Characterization for Making the Connectivity Case

**Outcome:** To understand how the scale of various aspects of the ecosystem, both spatial and temporal, will drive how research and monitoring programs are designed and management issues are addressed.

**Output:** Preliminary site characterization for each MPA

### **Module 3: Building Monitoring Programs on Site Characterization and Management Needs (2 days)**

- Designing a Monitoring Program to Address Specific Resource Management Issues
- Designing a Socioeconomic Monitoring Program to Measure Impacts on User Groups From Management Actions
- Developing Monitoring Programs to Measure Effectiveness of Restoration Programs
- Using Monitoring as a Project Evaluation Tool to Measure Results-Based Management
- Adaptive Management as a Response Mechanism to Outcomes of Results-Based Management Monitoring Programs
- Designing a Monitoring Program to Measure Impacts of Fisheries-Related Activities and Inform Management Decision Making
- Designing a Monitoring Program to Measure Impacts of Tourism-Related Activities and Inform Management Decision Making
- Interpretation and Management of Data
- Exercise: Develop a Seascape-wide Monitoring Program as a Regional Management Tool
- Exercise: Design a Socioeconomic Survey
- Case Studies: A Look at How Monitoring Results are Used Across a Large Geographic Region to Answer Specific Resource Management Questions

**Outcome:** To understand how to build monitoring programs for results-based management; to use monitoring as a tool to answer network-wide management questions

**Outputs:** Framework for seascape-wide monitoring program to measure effectiveness of sustainable tourism and sustainable fisheries plans

## **SECTION III: EMERGENCY RESPONSE AND NATURAL RESOURCE DAMAGE ASSESSMENT**

### **Module 4: Emergency Response and Natural Resource Damage Assessment (2 days)**

- Use of Oceanographic Data in Spill and Drift Models to Develop Risk Assessments
- Types of Response Options During Major Oil Spill
- Strategies for Selecting Response Methods
- Incident-Specific Feasibility Issues
- Incident-Specific On-Water Strategy Issues
- Incident Specific Shoreline Strategy Issues
- Protocols for the Care of Oil Affected Birds and Marine Mammals
- Planning and Response for Oil Spills in Mangroves, Coral Reefs, Seagrass Beds and Kelp Forests
- Setting up Web-based Tracking Systems for Natural Resource Damage Assessment
- Tracking of Distribution and Number of Species and Habitats of Concern in Relation to Spill Trajectories
- Exercise: Oil Spill Response Exercise
- Develop Seascape-wide Oil Response Framework
- Exercise: Using GIS Skills and Site Characterization to Develop Web-based Real Time Data System
- Case Studies: When Emergency Response Planning Works, and When It Doesn't

**Outcome:** To know the necessary steps to respond to an oil spill to minimize damage to natural resources

**Output:** Web-based real time data system as a tool for emergency response; framework for Seascape-wide emergency response plan

## SECTION IV: EDUCATION AND OUTREACH

### Module 5: Developing Coordinated Education and Awareness Building Programs (4 days)

- Purpose and Need for Coordinated Public Awareness and Education as a Tool for Altering Behavior to Support Marine Conservation
- Identifying Target Audiences
- Determining Appropriate and Effective Medium for Different Target Audiences
- Clear and Concise Messaging
- Links to Interpretation Programs and Facilities
- Developing Annual Strategies; Recurrent Messages and Annual Campaigns
- Importance of Building Partnerships
- Developing Education Programs for the Local Community
- Awareness Building for the Tourism Sector: Educating Both Tourists and Tourism Providers
- Awareness Building About Fisheries Impacts: Educating the Public, Community, Sport, Recreational and Commercial Fishing Sectors
- Awareness Building While Visiting: Lagoons and Estuaries, Coral Reefs, Small Islands, Beaches
- Publicity Materials and Promotion
- Visitor Centers
- Case Studies: Development of Small-Scale Visitor Centers
- Case Studies: Awareness Building Programs for the tourist and tourism industry
- Case Studies: Awareness Building Programs for the Community and Fishing Sector on Sustainable Fisheries
- Exercise: Develop a Framework for a Sustainable Tourism Education and Awareness Building Program
- Exercise: Develop a Framework for a Sustainable Fisheries Education and Awareness Building Program

**Outcome: To understand how and education and awareness building are important resource management tools**

**Output: Framework for comprehensive and coordinated education and awareness building plan that supports and integrates with the sustainable fisheries and sustainable tourism plans**